

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An intermediate device adapted to be provided between a first information processing device for providing an information processing service through a network and a second information processing device for receiving said information processing service, providing an intermediate service additional to said information processing service, said intermediate device comprising:

a state information acquirer that acquires state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

an intermediate service manager that manages, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied; and

a transfer controller that maintains the state of said existing session between said intermediate device and said second information processing device, establishing a new session between said intermediate device and said first information processing device, and transferring said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein said state information acquirer has a session monitor that acquires session information inherent in said session sent and received between said first information processing device and said second information processing device, as part of said state information,

wherein said state information acquirer has an information collector that acquires service inherent information inherent in said information processing service as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said state information acquirer inquires at said first information processing device or said second information processing device about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and extracts a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information, acquiring, as part of said service inherent information, a device identifier that identifies said first information processing device having said accessing objects, and

wherein said state information acquirer has a cancellation controller that issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and acquires said state information in a process of reestablishing the session according to said command.

2. (Cancelled).

3. (Cancelled).

4. (Cancelled).

5. (Previously Presented) An intermediate device according to claim 1, wherein said transfer controller has an operation mode for transferring data of the existing session between said first information processing device and said second information processing device without the data of the information processing service being subjected to said intermediate service, and an operation mode that establishes sessions between the intermediate device and both said second information

processing device and said first information processing device when a new requested session of said information processing service is requested to be established by said second information processing device, applying said intermediate service to the data of said information processing service using said sessions, and transferring said data of said information processing service.

6. (Cancelled).

7. (Previously Presented) An intermediate device according to claim 1, wherein said intermediate service has contents registered in advance by an operator.

8. (Original) An intermediate device according to claim 7, wherein said information processing service comprises a service for allowing said second information processing device to access a resource on said first information processing device, and said intermediate service comprises a service for changing the access from said second information processing device to the resource on said first information processing device to convert an access destination.

9. (Original) An intermediate device according to claim 7, wherein said information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

10. (Previously Presented) An intermediate device according to claim 1, wherein when said intermediate service ends being provided, said transfer controller:

when requested to newly establish a session of said information processing service from said second information processing device, transfers the data of said information processing service between said second information processing device and said first information processing device, establishing a session directly between said first information processing device and said second information processing device while exempting the data from said intermediate service; and

with respect to said information processing service which has already been provided, continuously transfers the data of said information processing service to which said intermediate service is applied using a session between itself and said first information processing device and a session between itself and said second information processing device, until said second information processing device ends employing said information processing service.

11. (Currently Amended) A service providing method of providing an intermediate service additional to an information processing service with an intermediate device which is provided between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, comprising:

the first step of controlling said intermediate device provided between said first information processing device and said second information processing device to acquire state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

the second step of controlling said intermediate device to generate, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied; and

the third step of controlling said intermediate device to maintain the state of said existing session between said intermediate device and said second information processing device, establish a new session between said intermediate device and said first information processing device, and transfer said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first step, said intermediate device acquires session information inherent in said session sent and received between said first information processing device and said second information processing device, as part of said state information,

wherein in said first step, said intermediate device acquires service inherent information inherent in said information processing service as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said intermediate device inquires at said first information processing device or said second information processing device about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and extracts a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first step, said intermediate device issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and acquires said state information in a process of reestablishing the session.

12. (Cancelled).

13. (Cancelled).

14. (Cancelled).

15. (Previously Presented) A service providing method according to claim 11, wherein in said first step, when all said state information which is required cannot be acquired, said intermediate device transfers data of the existing session between said first information processing device and said second information processing device without the data of said information

processing service being subjected to said intermediate service, and when a new requested session of said information processing service is requested to be established by said second information processing device, said intermediate device establishes sessions between the intermediate device and both said second information processing device and said first information processing device, applies said intermediate service to the data of said information processing service using said sessions, and transfers said data of said information processing service.

16. (Cancelled).

17. (Previously Presented) A service providing method according to claim 11, wherein said intermediate service has contents registered in advance in said intermediate device by an operator.

18. (Original) A service providing method according to claim 17, wherein said information processing service comprises a service for allowing said second information processing device to access a resource on said first information processing device, and said intermediate service comprises a service for changing the access from said second information processing device to the resource on said first information processing device to convert an access destination.

19. (Original) A service providing method according to claim 17, wherein said information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

20. (Previously Presented) A service providing method according to claim 11, further comprising:

the fourth step of, when said intermediate service ends being provided and when requested to newly establish a session of said information processing service from said second

information processing device, transferring the data of said information processing service between said second information processing device and said first information processing device, thereby establishing a session directly between said first information processing device and said second information processing device while exempting the data from said intermediate service; and

the fifth step of, with respect to said information processing service which has already been provided, continuously transferring the data of said information processing service to which said intermediate service is applied using a session between said intermediate device and said first information processing device and a session between said intermediate device and said second information processing device, until said second information processing device ends employing said information processing service.

21. (Currently Amended) A service providing program stored on a computer-readable media for providing an intermediate service additional to an information processing service executed by a computer on an intermediate device which is provided between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, said program enabling said computer to perform:

a first process of controlling state information acquirer to acquire state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

a second process of controlling intermediate service manager to generate, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transfer the data of said information processing service to which said intermediate service is applied; and

a third process of controlling transfer controller to maintain the state of said existing session between said intermediate device and said second information processing device, establish a new session between said intermediate device and said first information processing device, and transfer said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first process, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information,

wherein in said first process, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said first information processing device or said second information processing device are inquired at about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first process, cancellation controller issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and said state information acquirer acquires said state information in a process of reestablishing the session.

22. (Cancelled).

23. (Cancelled).

24. (Cancelled).

25. (Previously Presented) A service providing program according to claim 21, wherein in said first process, when all said state information which is required cannot be acquired, said transfer controller transfers data of the existing session between said first information processing device and said second information processing device without the data of said information processing service being subjected to said intermediate service, and when a new requested session of said information processing service is requested to be established by said second information processing device, said transfer controller establishes sessions between the transfer controller and both said second information processing device and said first information processing device, applies said intermediate service to the data of said information processing service using said sessions, and transfers said data of said information processing service.

26. (Cancelled).

27. (Previously Presented) A service providing program according to claim 21, wherein said intermediate service has contents registered in advance in said intermediate device by an operator.

28. (Original) A service providing program according to claim 27, wherein said information processing service comprises a service for allowing said second information processing device to access a resource on said first information processing device, and said intermediate service comprises a service for changing the access from said second information processing device to the resource on said first information processing device to convert an access destination.

29. (Original) A service providing program according to claim 27, wherein said information processing service comprises a service for allowing said second information processing device to access a WEB page on said first information processing device, and said intermediate service comprises a service for integrating said information processing services provided by a plurality of said first information processing devices and providing the integrated information processing services to said second information processing device.

30. (Previously Presented) A service providing program according to claim 21, further comprising:

a fourth process of, when said intermediate service ends being provided and when requested to newly establish a session of said information processing service from said second information processing device, controlling said transfer controller to transfer the data of said information processing service between said second information processing device and said first information processing device, establishing a session directly between said first information processing device and said second information processing device while exempting the data from said intermediate service; and

a fifth process of, with respect to said information processing service which has already been provided, controlling said transfer controller to continuously transfer the data of said information processing service to which said intermediate service is applied using a session between itself and said first information processing device and a session between itself and said second information processing device, until said second information processing device ends employing said information processing service.

31. (Currently Amended) A service providing program stored on a computer-readable media for being executed by a computer on an intermediate device to provide an intermediate service additional to an information processing service between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, said program enabling said computer to perform:

a first process of acquiring state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

a second process of generating, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied;

a third process of maintaining the state of said existing session between said intermediate device and said second information processing device, establishing a new session between said intermediate device and said first information processing device, and transferring said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first process, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information,

wherein in said first process, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said first information processing device or said second information processing device are inquired at about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first process, cancellation controller issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second

information processing device, and said state information acquirer acquires said state information in a process of reestablishing the session.

32. (Currently Amended) An intermediate device adapted to be provided between a first information processing device for providing an information processing service through a network and a second information processing device for receiving said information processing service, providing an intermediate service additional to said information processing service, said intermediate device comprising:

state information acquiring means for acquiring state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

intermediate service managing means for generating, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied; and

transfer control means for maintaining the state of said existing session between said intermediate device and said second information processing device, establishing a new session between said intermediate device and said first information processing device, and transferring said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein said state information acquiring means has a session monitor that acquires session information inherent in said session sent and received between said first information processing device and said second information processing device, as part of said state information,

wherein said state information acquiring means has an information collector that acquires service inherent information inherent in said information processing service as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said state information acquiring means inquires at said first information processing device or said second information processing device about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and extracts a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information, acquiring, as part of said service inherent information, a device identifier that identifies said first information processing device having said accessing objects, and

wherein said state information acquiring means has a cancellation controller that issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and acquires said state information in a process of reestablishing the session according to said command.

33. (Currently Amended) A service providing method of providing an intermediate service additional to an information processing service with an intermediate device which is provided between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, comprising:

the first step of controlling said intermediate device provided between said first information processing device and said second information processing device to acquire state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

the second step of controlling said intermediate device to generate, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied; and

the third step of controlling said intermediate device to maintain the state of said existing session between said intermediate device and said second information processing device, establish a new session between said intermediate device and said first information processing device, and transfer said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first step, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information,

wherein in said first step, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said first information processing device or said second information processing device are inquired at about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first step, cancellation controller issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second

information processing device, and said state information acquirer acquires said state information in a process of reestablishing the session.

34. (Currently Amended) A service providing program stored on a computer-readable media for providing an intermediate service additional to an information processing service executed by a computer on an intermediate device which is provided between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, said program enabling said computer to perform:

a first process of controlling state information acquiring means to acquire state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

a second process of controlling intermediate service managing means to generate, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transfer the data of said information processing service to which said intermediate service is applied; and

a third process of controlling transfer control means to maintain the state of said existing session between said intermediate device and said second information processing device, establish a new session between said intermediate device and said first information processing device, and transfer said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first process, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information,

wherein in said first process, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said first information processing device or said second information processing device are inquired at about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first process, cancellation controller issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second information processing device, and said state information acquirer acquires said state information in a process of reestablishing the session.

35. (Currently Amended) A service providing program stored on a computer-readable media for being executed by a computer on an intermediate device to provide an intermediate service additional to an information processing service between a first information processing device for providing said information processing service through a network and a second information processing device receiving said information processing service, said program enabling said computer to perform:

a first process of acquiring state information required to maintain the state of an existing session established between said first information processing device and said second information processing device for said information processing service by actively requesting and obtaining said state information from said first information processing device or said second information processing device;

a second process of generating, based on said state information, transfer rules for applying said intermediate service to data of said information processing service which is sent and received between said first information processing device and said second information processing device, and transferring the data of said information processing service to which said intermediate service is applied;

a third process of maintaining the state of said existing session between said intermediate device and said second information processing device, establishing a new session between said intermediate device and said first information processing device, and transferring said data of said information processing service using said existing session and said new session, according to said transfer rules,

wherein in said first process, session information inherent in said session sent and received between said first information processing device and said second information processing device is acquired as part of said state information,

wherein in said first process, service inherent information inherent in said information processing service is acquired as part of said state information by inquiring at said first information processing device or said second information processing device,

wherein said first information processing device or said second information processing device are inquired at about accessing data object identifying information assigned to identify respective accessing objects on said first information processing device, with respect to a plurality of said accessing objects, and a regularity of a pattern that is common to a plurality of obtained items of said accessing data object identifying information are extracted, thereby acquiring, as part of said service inherent information, a device identifier for identifying said first information processing device having said accessing objects, and

wherein in said first process, cancellation controller issues a command for temporarily nullifying and reestablishing said session to said first information processing device and said second

information processing device, and said state information acquirer acquires said state information in a process of reestablishing the session.